

FACT SHEET

CALIFORNIA ENERGY COMMISSION

Envelope Air Sealing 2013 California Energy Efficiency Building Standards

What is envelope air sealing?

Envelope air sealing is the process of limiting infiltration and exfiltration of air through the building envelope, the interface between the interior of the building and the outdoor environment. This process includes caulking, gasketing, weatherstripping, or otherwise sealing all joints, penetrations and other openings to limit air leakage.

When is envelope air sealing required?

Envelope air sealing is required when constructing, adding to, or altering residential and nonresidential buildings.

Why air seal the building envelope?

Air sealing of the building envelope is required by [Section 110.7](#) of the 2013 Building Energy Efficiency Standards (Energy Standards) and has been required since 1982. Buildings with improperly sealed envelopes experience higher rates of air leakage, which can result in increased energy use to heat or cool the building. This in-turn can lead to increased energy bills.

What are some of examples of what must be sealed?

- Exterior joints around window and door frames, including doors between the house and garage, between interior HVAC closets and conditioned space, between attic accesses and conditioned space, between wall sole plates and the exterior floor panels;
- Exterior wall air barrier at the top and bottom plates;
- Openings for plumbing, electricity, and gas lines in exterior walls, ceilings and floors;
- Openings in the attic floor, including where ceiling panels meet interior and exterior walls and masonry fireplaces;
- Openings around exhaust ducts such as those for clothes dryers;
- Field-fabricated operable windows and doors must have weatherstripping; and
- All other such openings in the building envelope.

Please see Figure 1^a for common air leakage paths.

When is a compliance document required?

A CF2R-ENV-02-E compliance document is required when a residential building envelope is constructed, added to, or altered.

An NRCI-ENV-01-E compliance document is required when a non-residential building envelope is constructed, added to, or altered.

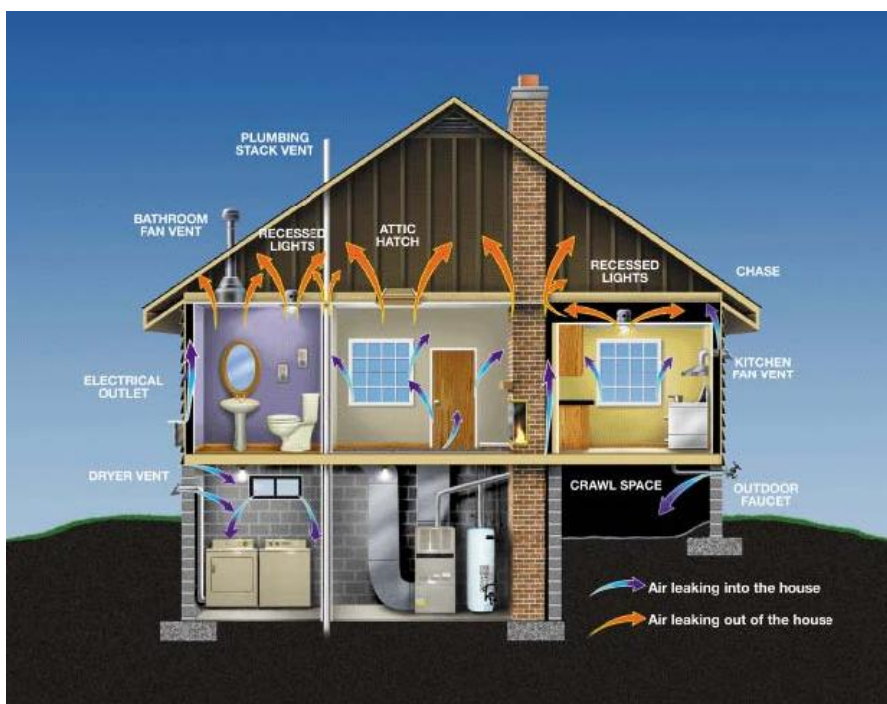


Figure 1 - Location of Common Air Leakage Paths^a.

How is envelope air sealing confirmed?

The responsible builder or installer confirms envelope air sealing by completing and certifying a CF2R-ENV-02-E compliance document (residential) or a NRCI-ENV-01-E compliance document (nonresidential).

Where do I find the required compliance documents and how do I submit them to the building department?

The **CF2R-ENV-02-E**, which is for residential purposes, is available through an approved HERS provider data registry. This compliance document is also available on the California Energy Commission's (Energy Commission) website at:

http://www.energy.ca.gov/title24/2013standards/res_compliance_compliance_documents/CF2R/2013-CF2R-ENV-02-EnvelopeAirSealing.pdf.

If HERS field verification is required for the project, this compliance document must be registered with an approved HERS provider data registry. A copy of the registered compliance document must be posted or made available to the enforcement agency for all applicable inspections.

For projects that do not require HERS field verification, the compliance document shall be posted or made available with the permit(s) issued for the building, and shall be made available to the enforcement agency for all applicable inspections (see [Section 10-103\(a\)3E](#) of the 2013 Energy Standards).

The **NRCI-ENV-01-E**, which is for nonresidential purposes, is available at:

http://www.energy.ca.gov/title24/2013standards/nonres_compliance_compliance_documents/NRCI/2013-NRCI-ENV-01-E-Envelope.pdf.

This compliance document shall be posted or made available with the permit(s) issued for the building, and shall be made available to the enforcement agency for all applicable inspections (see [Section 10-103\(a\)3E](#) of the 2013 Energy Standards). Registration of nonresidential compliance documents is not required until a nonresidential data registry is approved by the Energy Commission.

Please be advised that compliance documents are periodically updated. To ensure that you are using the current version, please download compliance documents immediately before each use.

Help With the 2013 Energy Standards

For assistance with understanding or locating information in the 2013 Energy Standards, contact the Energy Standards Hotline at: (800) 772-3300 (toll-free in California); (916) 654-5106 (outside California); or via email at title24@energy.ca.gov.

CEC-400-2014-024-FS

^a ENERGY STAR®. [10/21/2014]. U.S. Environmental Protection Agency and U.S. Department of Energy.
http://www.energystar.gov/ia/home_improvement/home_sealing/AirSealingFS_2005.pdf.